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# UPDATES: Area Studies

*Data updates from the Resources and Technology Division*

Resources and Technology Division  
Economic Research Service  
U.S. Department of Agriculture

September 1993

## Agricultural Production and Natural Resource Data Linked in Mid Columbia River Basin Study

The Area Study project is a data collection and modeling effort designed to assess national policy impacts. The focus is on the development of multi-year, farm-level data that link production activities to environmental characteristics for selected regions. The effort involves the Economic Research Service (ERS), the Soil Conservation Service (SCS), U.S. Geological Survey (USGS), and the National Agricultural Statistics Service (NASS).

A survey was developed to collect detailed information on production technologies, cropping systems, and agricultural practices at both the field and whole farm level. The survey sample points were chosen to correspond with National Resource Inventory (NRI) sample points. SCS conducts an NRI every 5 years, collecting soil, water, and other natural resource data for nearly a million sample sites nationwide. The use of the NRI points thus establishes a link between production activities and related resource characteristics.

### Data Releases Planned

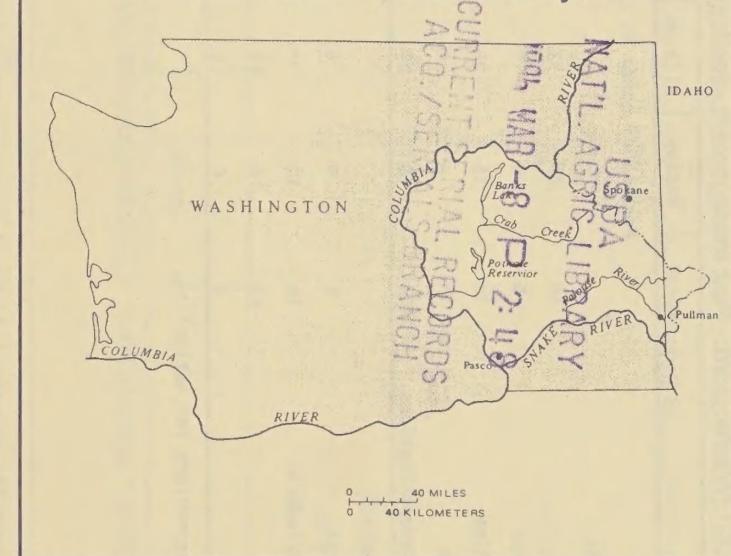
**RTD UPDATES**, published by the Resources and Technology Division, is a series of data highlights relating to agricultural resources, the environment, food safety, global change, and technology. Surveys of farm operators and others knowledgeable about changing agricultural resource conditions provide vital information to the RTD research program and are the source of these data highlights. **RTD UPDATES** gives readers recent data acquisitions, with only minimal interpretation or analysis. This quick release of data should enhance your analytical efforts and decisions. Please contact the individual listed in the text of **RTD UPDATES** on the availability and timing of additional information. Different resource and technology issues are featured each issue, depending on availability of data.

The sites chosen were selected from those included in USGS's National Water Quality Assessment Program (NAWQA) and were areas with significant cropland and agricultural chemical use levels. Four areas were chosen in 1991: the Central Nebraska Basins, the White River Basin (Indiana), the Lower Susquehanna Basin (Pennsylvania), and the Mid Columbia Basin (Washington).

This issue of **RTD UPDATES** summarizes the Mid Columbia River Basin Area Study survey data. It includes information on conservation practices, pest and nutrient management practices, chemical use, irrigation practices, tillage methods, and farm type by sales class. In addition, soil characteristics were used to construct a soil leaching potential index for the area.

Contact: L. Nodine or R. Keim, RTD (202) 219-0402.

### Mid Columbia River Basin Survey Area



The Mid Columbia River Basin study area is approximately 19,000 square miles, primarily in eastern Washington. About 80 percent of the basin is engaged in agricultural activities.

Mid Columbia River Basin (Washington): Pest management practices, 1991

Practice	Wheat	Barley	Alfalfa	Fallow	Percent of acres in crop
Type of pest management:					
Rotations	48	87	51	58	
Biological pest control	5	9	*	3	
Pest resistant varieties	18	15	26	16	
Non-pesticidal sprays	*	0	*	6	
Reduced pesticide rate/applications	11	10	29	6	
Source of pest management:					
On-farm pest specialist	5	9	*	5	
Extension/univ./state/federal	16	11	*	12	
Chemical dealer	63	76	51	6	
Professional scout	3	4	0	4	

\* indicates too few observations for estimation.

... indicates too few observations for estimation, \* indicates no use reported.

Mid Columbia River Basin (Washington): Pesticide use, 1991

Practice	Wheat	Barley	Alfalfa	Fallow	Percent of acres in crop
Type of pest management:					
Herbicides:					
2,4-D	0.6	47			
Bromoxynil	0.3	26	0.2	25	*
Chlorsulfuron	0.01	10	--	--	*
Dicamba	*	*	--	--	0.7
Glyphosate	*	*	--	--	0.3
MCPA	0.5	23	0.6	36	--
Thifensulfuron	0.01	29	0.01	39	*
Trialate	*	*	1.1	29	--
Trifenuron-methyl	0.01	37	0.01	39	*

Mid Columbia River Basin (Washington): Nutrient management practices, 1991

Practice	Wheat	Barley	Alfalfa	Fallow	Percent of acres in crop
Type of nutrient management:					
Soil nitrogen test	31	25	50	38	
Tissue analysis	3	4	0	0	
Factor influencing nitrogen use:					
Fertilizer company recommendation	10	11	15	11	
Consultant recommendation	2	4	*	8	
Crop appearance	3	0	*	5	
Soil/tissue test	27	20	30	38	
Extension service recommendation	1	0	0	0	
Standard amount for crop/rotation	45	46	*	26	

\* indicates too few observations for estimation.

Mid Columbia River Basin (Washington): Irrigation practices, 1991

Practice	Wheat	Barley	Alfalfa	Fallow	Percent of acres in crop
Type of agricultural land:					
Irrigation	10	7	82	16	
Sprinkler system	9	6	82	13	
Flood system	1	0	0	2	
Drip system	0	0	0	1	
Other system	0	1	0	0	
Fertigation	4	2	3	4	
Chemigation	1	0	0	1	

Mid Columbia River Basin (Washington): Major crop production, 1991

Item		Wheat	Barley	Alfalfa	Pasture	Rangeland	CRP	Fallow
Acres in crop	2,238,910	364,080	230,440	914,450	685,820	693,500	1,180,850	
% Acres in crop	33	5	3	14	10	10	18	
Acres in government program	2,154,160	308,180	N/A	N/A	N/A	693,500	N/A	
Yield per acre (bushels)	37	71	6 (tons)	N/A	N/A	N/A	N/A	
N/A indicates not applicable.								

Mid Columbia River Basin (Washington): Tillage types, 1991

Tillage type		Wheat	Barley	Alfalfa	Fallow	All agricultural land
Conservation tillage:						
No-till	50	64	5	5	69	34
Mulch/other conservation till	4	4	5	5	3	2
Conventional tillage:						
Moldboard plow	46	60	0	0	66	32
Other conventional	30	35	16	16	22	19
Not tilled or unknown	18	15	0	0	6	9
	12	20	16	16	16	10
	20	1	79	1	9	47

Mid Columbia River Basin (Washington): Conservation practices, 1991

Practice		Wheat	Barley	Alfalfa	Pasture	Rangeland	Fallow	All agricultural land
Chiseling and subsoiling								
Cover or green manure crop	38	65	*	*	N/A	N/A	52	28
Crop residue use	3	*	*	*	N/A	N/A	*	3
Grassed waterways	80	90	7	7	N/A	N/A	81	49
Contour crop	17	18	0	0	0	0	8	9
Pasture and hay management	44	63	0	0	0	0	53	27
Planned grazing system	N/A	N/A	36	53	49	N/A	17	
Conservation cover	N/A	15	*	72	87	N/A	42	24
N/A indicates not applicable, * indicates too few observations for estimation.	N/A	N/A	N/A	4	0	42	29	

Mid Columbia River Basin (Washington): Farms by sales class and farm type, 1991

Value of agricultural sales	Cash grains	Other field crops	Vegetables	Fruits	Beef/Hogs/Sheep	Dairy/other livestock	CRP only
Percent							
0-\$9,999	2	6	0	11	7	0	12
\$10,000-\$19,999	1	0	0	0	5	0	6
\$20,000-\$29,999	2	0	0	6	2	23	18
\$30,000-\$39,999	2	2	0	0	7	0	6
\$40,000-\$59,999	5	2	0	6	0	15	35
\$60,000-\$99,999	15	4	0	6	9	15	24
\$100,000-\$249,999	49	22	0	38	32	39	0
\$250,000-\$499,999	19	32	13	6	20	0	0
\$500,000 and up	6	30	87	28	18	8	0
Share of total	67	11	2	4	10	3	4

Mid Columbia River Basin (Washington): Soil leaching potential index\*

Soil leaching potential	Wheat	Barley	Alfalfa	Pasture	Rangeland	CRP	Fallow	Share of agricultural land
Percent of acres in crop								
Very high	47	4	50	6	22	45	56	36
High	16	3	4	50	33	39	9	21
Moderate	28	73	14	25	42	15	33	31
Low	8	17	5	11	1	1	1	7
Very low	0	0	0	0	0	0	0	0
Unknown	1	3	27	8	2	0	1	5

Soil leaching potential (SLP) = texture component + organic matter component + pH component

\* Potential of soils to leach highly soluble chemicals, based on intrinsic soil properties. Algorithm developed by J.B. Weber and R.L. Warren, North Carolina State University, in Weber, J.B. and R.L. Warren. "Herbicide Behavior in Soils: A Pesticide/Soil Ranking System for Minimizing Groundwater Contamination" Proceedings of the Northeastern Weed Science Society Vol. 46, 1992.

RTD UPDATES

Economic Research Service

U.S. Department of Agriculture

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## RTD UPDATES: 1993 Cropland Use

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September 1993

## Cropland Use Down, Idled Cropland Up Slightly in 1993

An estimated 333 million cropland acres are expected to be used for crops in 1993, down 7 million from 1992. Much of the decline is accounted for by a reduction in corn, soybeans, and sorghum plantings due to the wet weather and flooding in the Corn Belt, Lake States, and Northern Plains.

Harvest estimates of principal crops total 298 million acres, which with minor crops will likely raise total harvested acres to more than 311 million. About 10 million acres of the expected harvest are estimated to be doublecropped. After allowing for doublecropping, cropland harvested will total about 301 million acres. This estimate is down 7 million acres from 1992.

Crop failure is estimated at more than 10 million acres for 1993, the same as in 1988. Another 22 million acres are likely being summer fallowed in 1993, down about 1 million from last year.

Estimated cropland harvested is down and crop failure up sharply in the Lake States and Corn Belt. Similar, but smaller changes are noted in the Delta States, Northern Plains, and Appalachian regions. An early frost could increase crop failure considerably.

Cropland idled by Federal programs increased by more than 1 million acres, mostly from additional land bid into the Conservation Reserve Program (CRP). Increases in idling of corn and rice base acreage was largely offset by decreases in idling of wheat, barley, and cotton.

Preliminary data on crop base flexing in 1993 indicates large acreages flexed out of corn/wheat and into soybeans. Soybeans account for nearly two-thirds of the net change in cropland use from the flex provisions. Cotton was the only program crop with a net increase in acreage from the crop base flex.

Contact: Arthur Daugherty, RTD (202) 219-0422

## Data Releases Planned

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## Major Uses of U.S. Cropland

Million acres

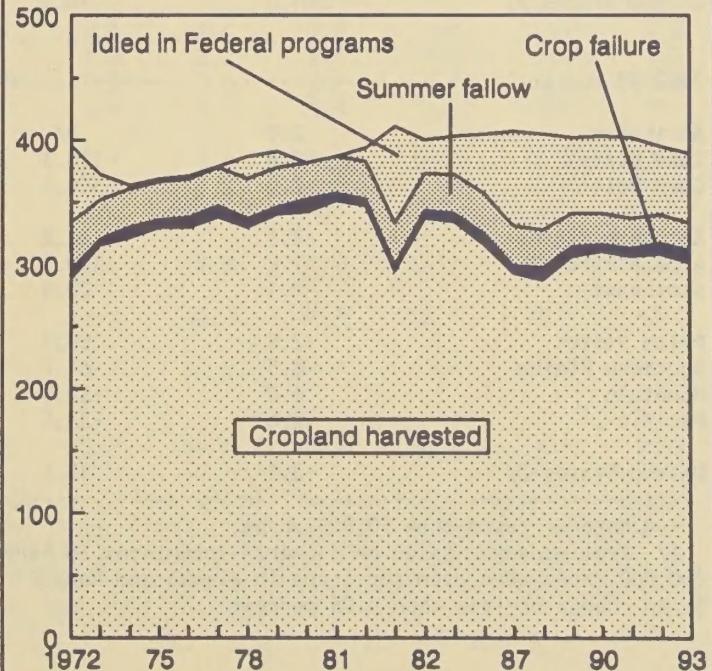


Table 1--Major uses of cropland, United States 1/

Cropland	1984	1985	1986	1987	1988	1989	1990	1991	1992 2/	1993 2/
Million acres										
Cropland used for crops	373	372	357	331	327	341	341	337	340	333
Cropland harvested 3/	337	334	316	293	287	306	310	306	308	301
Crop failure	6	7	9	6	10	8	6	7	9	10
Cultivated summer fallow	30	31	32	32	30	27	25	24	23	22
Cropland idled by all Federal programs	27	31	48	76	78	61	62	65	55	56
Annual programs	27	31	46	60	53	31	28	30	20	20
Long-term programs	0	0	2	16	25	30	34	35	35	36
Total, specified uses 4/	400	403	405	407	405	402	403	402	395	389

1/ Includes the 48 conterminous states. Fewer than 200,000 acres were used for crops in Alaska and Hawaii.

2/ Preliminary, subject to revision. 3/ A double-cropped acre is counted as one acre. 4/ Does not include cropland pasture or idle land not in Federal programs that is normally included in the total cropland base. Breakdown may not add to totals due to rounding.

Table 2--Cropland used for crops in 1993, and 1992-93 change, by region

Region	Cropland used for crops 1/				Share of all cropland used for crops
	Cropland harvested	Crop failure	Summer fallow	Total	
<b>1993:</b>					
		Million acres			Percent
Northeast	11.0	0.3	-	11.3	3.4
Lake States	31.4	1.5	-	32.9	9.9
Corn Belt	75.5	3.0	-	78.5	23.5
Northern Plains	73.5	2.2	10.7	86.4	25.9
Appalachian	16.1	0.6	-	16.7	5.0
Southeast	9.4	0.6	-	10.0	3.0
Delta States	15.6	0.3	-	15.9	4.8
Southern Plains	28.2	1.2	0.8	30.2	9.1
Mountain	24.8	0.5	8.0	33.3	10.0
Pacific	15.5	0.2	2.5	18.2	5.5
United States 2/	301.0	10.4	22.0	333.4	100.0
<b>1992-93 change:</b>					
		Percent			
Northeast	2.8	3/	3/	2.7	
Lake States	-7.6	114.3	3/	-5.2	
Corn Belt	-7.0	328.6	3/	-4.2	
Northern Plains	-2.3	22.2	-7.8	-2.4	
Appalachian	-1.2	100.0	3/	3/	
Southeast	-2.1	20.0	3/	-1.0	
Delta States	-2.5	50.0	3/	-1.9	
Southern Plains	8.5	-64.7	-20.0	-0.7	
Mountain	6.0	-37.5	-1.2	3.4	
Pacific	2.6	-33.3	-7.4	0.6	
United States 2/	-2.1	15.6	-5.6	-1.9	

- = None or fewer than 50,000 acres.

1/ Preliminary. Based on farmers' intentions to harvest. 2/ Includes the 48 conterminous States. Fewer than 200,000 acres were used for crops in Alaska and Hawaii. Breakdown may not sum to totals due to rounding.

3/ No change or less than 0.05 percent.

Table 3--Cropland idled under Federal acreage reduction programs, by region

Region	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993 1/
Million acres										
Northeast	0.1	0.2	0.5	0.9	0.9	0.7	0.7	0.6	0.5	0.6
Lake States	1.6	2.0	4.2	7.0	6.7	4.7	4.7	4.7	4.0	4.6
Corn Belt	2.9	3.8	8.5	15.3	13.9	8.8	9.0	8.2	7.3	9.3
Northern Plains	9.4	10.1	14.3	19.7	20.8	15.8	16.8	18.4	14.8	14.0
Appalachian	0.3	0.5	1.3	2.7	3.0	2.3	2.3	2.1	1.9	2.1
Southeast	0.5	0.7	1.3	3.0	3.2	3.0	3.0	2.9	2.8	2.9
Delta States	1.3	1.9	2.4	3.5	3.1	3.0	2.6	2.7	2.2	2.4
Southern Plains	5.7	5.9	8.3	11.7	12.0	10.0	9.8	11.0	9.0	8.9
Mountain	3.9	3.9	5.4	8.7	10.2	9.1	9.6	10.5	9.3	8.8
Pacific	1.3	1.6	2.2	3.5	3.8	3.2	3.1	3.6	3.1	2.8
United States 2/ 3/	27.0	30.7	48.1	76.2	77.7	60.8	61.6	64.5	54.9	56.4

1/ Preliminary. 2/ Includes the 48 conterminous States. Because of rounding, regional data may not sum to U.S. totals. 3/ Includes cropland idled by 0/92 and 50/92 programs from 1986 through 1992, except for about 0.5 million acres in 1991, 0.7 million acres in 1992, and 1.0 million acres in 1993 enrolled in 0/92 or 50/92 programs and planted to minor oilseeds. Also includes 2.0 million acres enrolled in the Conservation Reserve Program in 1986, 15.7 million acres enrolled in 1987, 24.5 million acres enrolled in 1988, 29.8 million acres enrolled in 1989, 33.9 million acres enrolled in 1990, 34.4 million acres enrolled in 1991, 35.4 million acres enrolled in 1992, and 36.5 million acres enrolled in 1993.

Table 4--Cropland idled under Federal acreage reduction programs, United States

Program and crop	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993 1/
Million acres										
Annual programs, base acres:										
Corn	3.9	5.4	14.2	23.2	20.5	10.8	10.7	7.4	5.2	8.8
Sorghum	0.6	0.9	2.9	4.1	3.9	3.3	3.3	2.4	2.0	2.0
Barley	0.5	0.7	2.0	3.0	2.8	2.3	2.9	2.1	2.3	1.9
Oats	0.1	0.1	0.5	0.8	0.3	0.3	0.2	0.5	0.6	0.6
Wheat	18.6	18.8	21.0	23.9	22.5	9.6	7.5	15.6	7.3	4.6
Cotton	2.5	3.6	4.0	3.9	2.2	3.5	2.0	1.2	1.7	1.3
Rice	0.8	1.2	1.5	1.6	1.1	1.2	1.0	0.9	0.4	0.6
Total, annual programs 2/	27.0	30.7	46.1	60.5	53.3	30.9	27.7	30.1	19.5	19.9
Conservation Reserve Program (CRP), base acres: 3/										
Corn		0.2	2.3	2.8	3.4	3.8	3.9	4.1	4.3	
Sorghum		0.2	1.2	1.9	2.2	2.4	2.4	2.4	2.5	
Barley		0.1	1.1	1.9	2.4	2.7	2.8	2.8	2.8	
Oats		0.1	0.5	0.9	1.1	1.3	1.3	1.4	1.4	
Wheat		0.6	4.2	7.1	8.8	10.3	10.4	10.6	10.9	
Cotton		0.1	0.7	1.0	1.2	1.3	1.3	1.4	1.4	
Rice		4/	4/	4/	4/	4/	4/	4/	4/	
Total CRP-idled base acres 2/			1.2	10.0	15.5	19.0	21.8	22.0	22.6	23.3
Total base acres idled 2/	27.0	30.7	47.4	70.5	68.8	49.9	49.5	52.1	42.1	43.2
Total CRP-idled nonbase acres			0.7	5.7	8.9	10.9	12.1	12.4	12.8	13.2
Total cropland idled under Federal programs 2/	27.0	30.7	48.1	76.2	77.7	60.8	61.6	64.5	54.9	56.4

1/ Preliminary. 2/ Because of rounding, crop acreages may not sum to the totals. Base acreages idled under 0/92 and 50/92 programs from 1986 through 1992 are included in annual program data. However, base acres of feed grains and wheat enrolled in 0/92 and planted to oilseeds in 1991 (0.5 million acres), in 1992 (0.7 million acres), and in 1993 (1.0 million acres) are not included. 3/ Program began in 1986. Small acreages of peanut and tobacco base were bid into the CRP in addition to the crops listed. 4/ Less than 50,000 acres.

Table 5--Use of crop base flex area by program crop, 1993 1/

1993 Use of flex area	Program crop base acreage flexed							
	Corn	Sorghum	Barley	Oats	Wheat	Cotton	Rice	Total
Thousand acres								
Flexed from other program crops	839	428	82	71	723	531	16	2,690
Flexed to other program crops	-415	-279	-311	-255	-1,322	-123	-67	-2,772
Flexed to nonprogram crops:								
Soybeans	-2,318	-275	-121	-84	-1,497	-142	-241	-4,678
Minor oilseeds	-72	-21	-105	-25	-366	-40	-41	-669
Other nonprogram crops	-232	-131	-190	-48	-976	-83	-29	-1,689
Subtotal - Nonprogram crops	-2,622	-427	-416	-157	-2,839	-265	-311	-7,036
Net change from flex provisions	-2,198	-278	-645	-341	-3,438	143	-362	-7,118
Normal flex acres 2/	-9,972	-1,646	-1,330	-487	-10,244	-2,044	-594	-26,317
Optional flex acres 3/	-6,648	-1,097	-887	-324	-6,829	-1,362	-396	-17,543
Total flex acres possible	-16,620	-2,743	-2,217	-811	-17,073	-3,406	-990	-43,860

1/ A negative number indicates the area flexed (or available for flexing) out of the crop heading the column to another crop. A positive number indicates the area flexed into the crop heading the column from another program crop.  
 2/ Normal flex acres were computed as 15 percent of enrolled base acres of the program crops. 3/ Optional flex acres could be up to an additional two-thirds of the normal flex acres (10 percent of enrolled base acres).

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